PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

> 100011
> 22/F, Great Eagle Centre
> 23 Harbour Road, Wanchai
> Hong Kong Special Administrative Region
> The People's Republic of China
> China Patent Agent (H.K.) Ltd.

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43 *bis*.1)

Date of mailing
(day/month/year) OCT 2006 (2 6 · 1 0 · 2 0 0 6)

Applicant's or agent's file reference	FOR FURTHER ACTION
FPEL05150069	see paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/CN2005/002305	23.Dec 2005 (23.12.2005)	

International Patent Classification (IPC) or both national classification and IPC
G06F9/00 （2006.01） i

Applicant
INTEL CORPORATION et al

1. This opinion contains indications relating to the following items:

   ☒ Box No. I   Basis of the opinion
   ☐ Box No.II   Priority
   ☐ Box No. III   Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   ☐ Box No. IV   Lack of unity of invention
   ☒ Box No. V   Reasoned statement under Rule 43*bis*.1(a)(i)with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   ☐ Box No.VI   Certain documents cited
   ☐ Box No. VII   Certain defects in the international application
   ☐ Box No.VIII   Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

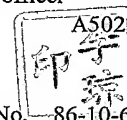3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/CN	Date of completion of this opinion	Authorized officer
The State Intellectual Property Office, the P.R.China 6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China 100088 Facsimile No. 86-10-62019451	06.Sep 2006 (06.09.2006)	A502 Telephone No. 86-10-62084932

Form PCT/ISA/237(cover sheet)(April 2005)

Box No. I   Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:

    ☒   the international application in the language in which it was filed
    ☐   a translation of the international application into _____ , which is the language of a translation
    furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed
    invention, this opinion has been established on the basis of :

    a.   type of material
         ☐   a sequence listing
         ☐   table(s) related to the sequence listing

    b.   format of material
         ☐   on paper
         ☐   in electronic form

    c.   time of filing/furnishing
         ☐   contained in the international application as filed
         ☐   filed together with the international application in electronic form
         ☐   furnished subsequently to this Authority for the purposes of search

3. ☐   In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or
        furnished, the required statements that the information in the subsequent or additional copies is identical to that in the
        application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4.   Additional comments:

Form PCT/ISA/237(Box No. I) (April 2005)

Box No. V   Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1.   Statement:

Novelty (N)	Claims	4-7,11-14,16,20-23,27-30	YES
	Claims	1-3,8-10,15,17-19,24-26	NO
Inventive step (IS)	Claims	4-7,11-14,16,20-23,27-30	YES
	Claims	1-3,8-10,15,17-19,24-26	NO
Industrial applicability (IA)	Claims	1-30	YES
	Claims		NO

2.   Citations and explanations

（1）The documents cited in the search report have been taken into consideration here:

D1:US20030037089A1

D2:US6961941B1

D3:GB2355319A

（2）D1 discloses a method, and particularly discloses features as follows (cited in abstract, col2 line 4 to col 7 line 13): trapping, by a processor, a change in execution among schedulable entities; and tracking an execution of a schedulable entity that is switched in for execution as a result of the change in execution. Thereby, D1 discloses all of the technical features of claim1, claim 1 lacks an novelty (Article 33(2) PCT).

For claims 2 and 3, their additional features are disclosed in D1 (cited in abstract, col2 line 4 to col 7 line 13), thus, claims 2 and 3 lack an novelty (Article 33(2) PCT).

D2 discloses a computer architecture.The computer architecture includes a first operating system (COS), which may be a commodity operating system, and a kernel, which acts as second operating system. The COS is used to boot the system as a whole. After booting, the kernel is loaded and displaces the COS from the system level, meaning that the kernel itself directly accesses predetermined physical resources of the computer. All requests for use of system resources then pass via the kernel. System resources are divided into those that, in order to maximize speed, are controlled exclusively by the kernel, those that the kernel allows the COS to handle exclusively, and those for which control is shared by the kernel and COS. In the preferred embodiment of the invention, at least one virtual machine (VM) runs via a virtual machine monitor, which is installed to run on the kernel. Each VM, the COS, and even each processor in a multiprocessor embodiment, are treated as separately schedulable entities that are scheduled by the kernel. Mechanisms for high-speed I/O between VM's and I/O devices are also included.

D3 discloses a job scheduler. The job scheduler has an associated task file (40) comprising one or more platform dependent task definitions having associated conditions for execution. The scheduler comprises: a thread (12) for monitoring for a change to the task file; and a thread (14), responsive to changes in the task file, for reading the task file and, responsive to the conditions for execution of any one of the one or more tasks being met, spawning a further thread (16) for executing the task.

It is obvious that not all the technical features in claims 4-7 are disclosed by D1,D2 or D3，and further the technical solution claimed is not obvious to a person skilled on the basis of D1,D2,D3 or their combination. Thus, claims 4-7 has novelty under PCT Article 33(2), and has an inventive step under PCT Article 33(3) .

D1 discloses an apparatus, and particularly discloses features as follows (cited in abstract, col2 line 4 to col 7 line 13): compring a processing unit configured to trap a change in execution among schedulable entities, to compare a state register that identifies the schedulable entity being switched in for execution with a state match register that identifies a schedualble entity that is to be tracked, and to track the schedulable entity being switched into execution if the state register and the state match register match. Thereby, D1 discloses all of the technical features of claim8, claim 8 lacks an novelty (Article 33(2) PCT).

For claims 9 and 10, their additional features are disclosed in D1 (cited in abstract, col2 line 4 to col 7 line 13), thus, claims 9 and 10 lack an novelty (Article 33(2) PCT).

It is obvious that not all the technical features in claims 11-14 are disclosed by D1,D2 or D3，and further the technical solution claimed is not obvious to a person skilled on the basis of D1,D2,D3 or their combination. Thus, claims 11-14 has novelty under PCT Article 33(2), and has an inventive step under PCT Article 33(3) .

D1 discloses an apparatus, and particularly discloses features as follows (cited in abstract, col2 line 4 to col 7 line 13): a processing unit, which trapping, by a processor, a change in execution among schedulable entities; and privileged entity, which cause the processing unit to track an execution of a schedulable entity that is switched in for execution as a result of the change in execution. Thereby, D1 discloses all of the technical features of claim15, claim 15 lacks an novelty (Article 33(2) PCT).

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**

Continuation of : **Box No. V**

For claims 17-19, their additional features are disclosed in D1 (cited in abstract, col2 line 4 to col 7 line 13), thus, claims 17-19 lack an novelty (Article 33(2) PCT).

It is obvious that not all the technical features in claims 16,20-23 are disclosed by D1,D2 or D3, and further the technical solution claimed is not obvious to a person skilled on the basis of D1,D2,D3 or their combination. Thus, claims 16,20-23 has novelty under PCT Article 33(2), and has an inventive step under PCT Article 33(3) .

D1 discloses a machine-readable medium, and particularly discloses features as follows (cited in abstract, col2 line 4 to col 7 line 13): providing instructions, which when executed by a machine, cause the machine to perform operations compring: trapping, by a processor, a change in execution among schedulable entities; and tracking an execution of a schedulable entity that is switched in for execution as a result of the change in execution. Thereby, D1 discloses all of the technical features of claim24, claim 24 lacks an novelty (Article 33(2) PCT).

For claims 25 and 26, their additional features are disclosed in D1 (cited in abstract, col2 line 4 to col 7 line 13), thus, claims 25 and 26 lack an novelty (Article 33(2) PCT).

It is obvious that not all the technical features in claims 27-30 are disclosed by D1,D2 or D3, and further the technical solution claimed is not obvious to a person skilled on the basis of D1,D2,D3 or their combination. Thus, claims 27-30 has novelty under PCT Article 33(2), and has an inventive step under PCT Article 33(3) .

As such, D2 also discloses all of the technical features of claims 1-3,8-10,15,17-19,24-26（abstract, col 6 line37 to col col 26 line 42）, so claims 1-3,8-10,15,17-19,24-26 lack an novelty with respect to D2（Article 33（2）PCT）.

For claims 4-7,11-14,16,20-23,27-30: it is obvious that not all the technical features in claims 4-7,11-14,16,20-23,27-30 are disclosed by D1,D2 or D3, and further the technical solution claimed is not obvious to a person skilled on the basis of D1,D2,D3 or their combination. Thus, claims 4-7,11-14,16,20-23,27-30 has novelty under PCT Article 33(2), and has an inventive step under PCT Article 33(3).

Claims 1-30 are industrially applicable (Article 33(4) PCT) because the said method, said system, said virtual machine monitor and said machine readable medium can be made and used in the industries.